IN THE CLAIMS

Please amend the following claims which are pending in the present application:

What is claimed:

1-6. (Cancelled)

7. (Currently amended) An apparatus comprising:

a package substrate having top and bottom buildup layers, including a plurality of conductive traces and vias formed therein interconnecting top and bottom surfaces of the package substrate, disposed on a thermally conductive substrate core, wherein a portion of the substrate core is exposed at a top surface of the package substrate for attachment of a heat spreader.

8. (Original) The apparatus of claim 7, wherein the exposed portion of the substrate core extends around the perimeter of the top surface buildup layers.

9. (Original) The apparatus of claim 7, wherein the substrate core is made of metal.

10. (Currently amended) An apparatus comprising:

a package substrate including a thermally conductive substrate core, having first and second portions, and a buildup layer, including a plurality of conductive traces and vias formed therein interconnecting top and bottom surfaces on the buildup layer, being disposed on only the first portion of the substrate ~~core~~ core;

an integrated circuit having a top surface and a backside surface, the integrated circuit mounted to the ~~package substrate~~ buildup layer with the top surface of the integrated circuit facing the package substrate; and

a heat spreader mounted to the second portion of the substrate core, a bottom surface of the heat spreader thermally coupled to the backside surface of the integrated circuit.

11. (Original) The apparatus of claim 10, wherein the heat spreader is thermally coupled to a perimeter portion of the substrate core.

12. (Original) The apparatus of claim 10, wherein the heat spreader is soldered to the substrate core.

13. (Original) The apparatus of claim 10, wherein the heat spreader is made of metal.

14. (Original) The apparatus of claim 10, wherein the substrate core is made of metal.

15. (Original) The apparatus of claim 10, comprising a thermal interface material disposed between the backside surface of the integrated circuit and the bottom surface of the heat spreader.

16. (Original) The apparatus of claim 10, comprising a heat sink attached to a top surface of the heat spreader.

17. (Original) The apparatus of claim 16, comprising a fan attached to the heat sink.

18. (Original) The apparatus of claim 10, wherein the integrated circuit is mechanically and electrically coupled to the package substrate by a plurality of solder bump interconnections.

19. (Original) The apparatus of claim 18, comprising a printed circuit board, wherein the package substrate is mounted on the printed circuit board.

20. (Original) The apparatus of claim 19, wherein the package substrate is mechanically and electrically coupled to the printed circuit board by a plurality of solder bump interconnections.

21. (Currently amended) An apparatus comprising:

a package substrate including a thermally conductive substrate core, having first and second portions, and a buildup layer, including a plurality of conductive traces and vias formed therein interconnecting top and bottom surfaces of the buildup layer, being disposed on only the first portion of the substrate core;

at least two integrated circuits having top surfaces and a backside surface, the integrated circuits mounted to the package substrate with the top surfaces of the integrated circuits facing the package substrate; and

a heat spreader mounted to the second portion of the substrate core, wherein a surface of the heat spreader is thermally connected to the backside surfaces of the at least two integrated circuits.

22. (Original) The apparatus of claim 21, comprising one or more capacitors mounted on a top surface of the package substrate.

23. (Original) The apparatus of claim 21, wherein the heat spreader is soldered to the substrate core.

24. (Currently amended) An ~~Apparatus~~ apparatus comprising:

a package substrate including a metal substrate core, having first and second portions, and a buildup layer, having a plurality of conductive traces and vias formed therein interconnecting top and bottom surfaces of the buildup layer disposed on the first portion of the substrate core;

an integrated circuit having a top surface and a backside surface, the integrated circuit mounted to the buildup layer with the top surface of the integrated circuit facing the package substrate; and

a heat spreader mounted to the second portion of the substrate core, a bottom surface of the heat spreader thermally coupled to the backside surface of the integrated circuit.

25. (Original) The apparatus of claim 24, wherein the heat spreader is thermally coupled to a perimeter portion of the substrate core.

26. (Original) The apparatus of claim 25, comprising a heat sink attached to a top surface of the heat spreader.